

Quiz

Name

1. A weather satellite has been placed in orbit around Earth. Verify the following:
 - a. If the satellite's orbit is a circle, then its orbital speed is constant.

- b. If the satellite's orbital speed is constant, then its orbit is a circle.

Formulas and Data: $A = ab\pi$, $a^2 = b^2 + e^2$, $\varepsilon = \frac{e}{a}$, $F = ma$, $\kappa = \frac{A_t}{t}$, $M = \frac{4\pi^2 a^3}{GT^2}$, $F = G\frac{mM}{r^2}$,
 $F = \frac{4\pi^2 a^3 m}{T^2} \frac{1}{r_P^2}$, $\frac{a^3}{T^2} = \frac{GM}{4\pi^2}$, $G = 6.673 \times 10^{-11}$ in M.K.S. $v_{\max} = \frac{2\pi a}{T} \sqrt{\frac{1+\varepsilon}{1-\varepsilon}}$ $v_{\min} = \frac{2\pi a}{T} \sqrt{\frac{1-\varepsilon}{1+\varepsilon}}$.